Saskatchewan Food Processing Industry Sector Strategy Partnership
- Phase II -

FINAL REPORT

March, 2005

EXECUTIVE SUMMARY

Introduction

During Phase I of this study, a training needs assessment was completed to enable the drafting of a strategy for training the food manufacturing sector in Saskatchewan. The objective of Phase II was to determine the best practices for development and delivery of training to SK food manufacturers. The following provides a summary of the Phase II report.

Sector Profile Summary

The food manufacturing industry in Saskatchewan is characterized as one in which 300 companies employing nearly 7,000 people generate $2.1 billion in yearly sales (2001-2002 Industry Profile, Saskatchewan Food Processors' Association). The largest processing category is meat followed by bakery and speciality products. It is a geographically diverse group ranging from La Ronge to Swift Current and almost equally dispersed between rural and urban locations. The provincial and federal governments are engaged in programs to encourage the growth of this sector to change the nature of Canada's exports from unprocessed low value commodities to value-added, branded food products that are safe, high quality and competitive.

Sector Partnerships

The Saskatchewan Food Industry Development Centre (Food Centre) in partnership with the Dept. of Agriculture, Food & Rural Revitalization (SAFRR), the University of Saskatchewan (U of S), and the Saskatchewan Food Processors Association (SFPA) are co-located at the Food Centre in Saskatoon, SK.

The Food Centre's mandate is to be a catalyst for growth of the food manufacturing sector in SK and fulfills this mission through the coordinated efforts of the partners.

Each partner at the Food Centre in Saskatoon provides core services to the Food Centre clientele and the industry:

- SAFRR provides technical expertise in the areas of food safety, food technology, and product and process development. Achieves their goals through the provision of coaching and training to the industry.
- SFPA focuses on helping companies market and distribute their products through the provision of programs, promotions and training.
- The University of Saskatchewan is actively involved in the development of products from grains and meats through the Value-Added Crops and SK Food Product Innovation Program

The Food Centre has provided a focal point for an industry seeking training and education experiences and as such has become an integral player in communicating training opportunities to the industry. The Food Centre and its partners' communication strategies have resulted in a high industry awareness of training options through the Centre's effective use of its website, newsletters, mailings and industry conferences and workshops.

Methodology

In February 2003, the Saskatchewan Food Industry Sector Partnership Committee was formed for Phase II of this study with assistance from Saskatchewan Learning. The Committee was established and mandated with the responsibility for overseeing and directing all Phase II project activities to ensure project objectives were achieved, and providing direction for various research

components, survey development and the final report. Participating members of the Food Industry Sector Partnership Committee include the following:

Carlton Train Regional College
College of Agriculture, University of Saskatchewan
United Food & Commercial Workers
InfraReady Products Ltd
Delsa Food Processors
Can-Oat Milling
Kelsey Campus, Saskatchewan Institute of Applied Science and Technology (SIAST)
Global Management Resources Inc.
Saskatchewan Learning
Saskatchewan Food Processors Association
Saskatchewan Agriculture & Food

The following briefly describes the steps that were taken to complete the study and produce this report:

a) Evaluation of Distance Education – At the request the Saskatchewan Food Processors Association and Saskatchewan Agriculture, representatives of SIAST Community Services Department performed an evaluation of distance education media types. The full report can be found in Appendix A. The types of distant education media examined were: print material, videotapes, Web-based asynchronous, Web-based synchronous, videoconferencing, television (SCN), and teleconferencing.
The strengths, weaknesses, opportunities and threats (SWOT) associated to online learning was also analyzed. SWOT categories were detailed for all possible environmental factors that would affect online learning. The environmental factors included: economical, financial, political, demographical and technological.

b) Cost Analysis of Development and Delivery - SIAST was requested by Saskatchewan Food Processors Association and Saskatchewan Agriculture to provide a cost analysis for online distance education. The full report can also be found in Appendix A.

c) Focus Group Study – In response to a request from the Saskatchewan Food Processors Association and Saskatchewan Agriculture, representatives of SIAST Program Planning and Development Department conducted a focus group with representatives of the SFPA. The full report can be found in Appendix B. Participants were selected to ensure representation from a range of sizes of businesses.

The purposes of the focus group were to determine:

- the most suitable method of delivering training
- reasonable training costs
- the ten priority areas for course development
- strategies for training success

Key Findings

The following summarizes the key findings from the research and consultations that have taken place over the course of the study of the Saskatchewan Food Processing Industry Sector Strategy Partnership – Phase II:

a) Evaluation of Distance Education – Tabulated below are the results of the (1) strengths and weaknesses of the different types of distance educational media plus (2) the SWOT analysis associated with the different environmental factors:

Strengths & Weaknesses of Different Types of Distance Education Media

Medium	Strengths	Weaknesses
Print	• Fairly inexpensive to develop and/distribute • Presents large volumes of information efficiently and students can read material whenever, wherever and as often as they like • Spontaneous • Non-threatening • Easy to use • Cost effective	• A passive medium • Can be difficult to motivate students and maintain a high level of involvement • Very limited feedback and interaction • Dependent on reading skills – can be frustrating for less educated students, or those with average or below average reading skills • Is incapable of rendering three-dimensional objects – limited view of reality • Producing colour charts and graphics is very costly

		• May result in isolation for students if used solely • Difficult to update
Videotapes – one way	• Well suited for static or unchanging areas • Can potentially be used over a long shelf life • Provide visuals to allow for demonstrations • Can be viewed anytime	• Is a passive medium • Difficult to make changes • Requires access to video equipment • May result in isolation for students if used solely • Limited interaction, feedback and communication if used solely • Development costs are upfront for production – more costly than print
Web-based Asynchronous (WebCT)	• Provides a high volume of interactive textbook, audio, video, and simulations (attractive to students who may not be motivated by print materials) • Allows for student interaction and communication • Immediate feedback • Easy to update and keep current	• Requires student access to needed hardware and Internet connection • Is more expensive and time consuming to create and product than print
Web-based Synchronous (LearnLinc)	• Interactive, immediate and highly participative	• Requires some knowledge of equipment and system • Requires student access to needed hardware and Internet connection • May require high speed Internet access
Videoconferencing	• Ability to provide students with up to the minute information and content • Provides mass distribution • Interactivity can be built in	• Is not the most effective choice for presentation of materials (such as graphics) • Equipment can be unreliable • Equipment is expensive
Televised (SCN)	• Ability to provide students with up to the minute information and content provides mass distribution • Interactivity can be built in • Presentation of materials can be incorporated	• Expensive distribution costs • Less interactive than computer based • Mostly one way communication
Teleconferencing	• Can be effective for tele-mentoring • Reliable method of communication	• Can be expensive for student • No visual capability

S.W.O.T Analysis of Web-based Distance Education Media

Environmental Factors	SWOT Categories			
	Strengths	Weaknesses	Opportunities	Threats
Economic	Well suited to provide technical training for adults by reducing barriers of time, place and pace of study Develop long term programs for credential Efficient course development time (6-12 months)	Higher cost of course Target audience learning styles not always met through technology	Business/industry and population demands for flexible technical training Shortage of skilled workforce Increased educational levels expected to increase productivity/prosperity Growing global social demand for higher education	Other programs may be available outside of the province
Financial	Online templates and curriculum model at SIAST provides ability to benefit from economies of scale and product differentiation – unique goods/services Quality of services Ability for students to take training while working Provincial network – sharing Resources & collaboration among institutions and agencies Tuition fees are comparable to face to face delivery	Highly interactive activities increase development costs Requires external funds for development	Rising tuition fees and auxiliary expenses associated with university education – technical training in the way of certificates, diplomas may make online more practical and affordable Increasing local & global credit transfer & collaboration	Deficit provincial & federal budgets with cuts to post-secondary education Need for appropriate pricing required due to potential of similar courses with lower tuition fees Low income of users

Political	Embraces change and demonstrates resilience Clear roles and responsibilities Motivated agencies and institutions	Subject to government support Required understanding of vocabulary and medium for development and delivery Reliance on other subsystems to provide services (i.e., delivery, distribution, registration, marketing)	Current provincial and national governments supportive of distance education View online education as a means to fast tracking training especially for skill shortages High training need based on real threats such as BSE Support network provided by provincial system	Global environment user pay trend Declining government financial support Need for availability of sufficient bandwidth province wide
Demographic	Courses serve diverse interests & wide range of the population Defined target groups such as Food Processors	Challenges to accommodate non-traditional learners Requires motivated and self-directed students	Increasing Aboriginal population attracted to job related training Societal movement to lifelong learning Increasing public expectation of access to education Increasing number of part-time students Greater student control of learning Ability to reach a spread geographic population	Saskatchewan declining population Inequitable access to equipment Limited computer skills & lack of confidence toward use of technology for learning
Technological	Responsive to technological change Balance of access and ability to communicate and interact SIAST's ability to provide technology support	Reliance of learner on technology support Limited experience of consumers in online delivery & participation	Increasing importance and availability of technological support Increasing technology enhanced lifestyles Increasing access to course development software including freeware	Worldwide access to courseware over the Internet – fierce competition

b) Cost Analysis of Development and Delivery – SIAST concluded that the cost and time required to develop online courses would vary. Development time rate equals the number of person-hours of development (content expert, course designer, graphics designer and others) required to develop each finished hour of instruction.

Factors affecting development rate include:

- Complexity – simple sequence of static pages that require arranging textbook and graphics into media software or more complexities
- Interactive exercises – course incorporation of interactive exercises using tools that create self-check exercises
- Existing materials – course being created from existing classroom materials and instructor notes with accompanying textbook
- Templates – usage of developmental templates
- Simulations – creation of simulations
- Graphics and multimedia – graphics, video, audio, animation usage
- Custom programming – multiplicative effect (the more complex the course, the more development hours required)
- Current materials – current education materials coincide with less development hours verses developing online media from 'scratch'
- Experience – the experience of the design team
- Length – increased length of training materials increases cost

While course costs vary considerably, the following additional courses that have been produced by SIAST in other studies provide an additional sense of development cost:

- 16-hour course = $27,000
- 30-hour course = $42,000
- 60-hour course = $54,000

SIAST delivery costs are calculated based on direct costs to the student and minimal indirect costs to the institution. The direct costs include salary that would need to be paid to an instructor and any other costs that would relate to the course. Sample delivery costs for previously developed and delivered courses follow:

- 15-hour course = $150
- 30-hour course = $250
- 60-hour course = $400

c) Focus Group Study – A major theme that came out of the meeting was the need for flexibility as to when and how courses are offered. A number of participants stressed a preference for having training available on demand in order to "fill slow times" in production, when new employees are hired, etc. Training programs available on demand are an important factor in ensuring success.

The top 10 training courses identified by the focus group were broken down into courses that would be beneficial to management and courses beneficial to production workers. Below are the results:

Top 10 Training Needs		
	Managers	Production Workers
1	Business Planning	Workplace Safety
2	Leadership	Food Quality
3	Marketing	Hazard Analysis Critical Control Point (HACCP)
4	Competitive Intelligence	Good Manufacturing Practices (GMPs)
5	Markets	Food Safety
6	Decision Making/Problem Solving	Food Handlers' Training
7	Oral Communication	First Aid
8	Senior Management Training	International Standards Organization (ISO)
9	Middle Management Training	Food Processing Regulations
10	Food Regulations	Maintenance Personnel Training

Ideas for suitable costs of training varied considerably. Acceptable training costs for management programs depend more on the quality of training received and are more variable. Most companies reported that it is more difficult to free up production workers to attend training programs, possibly only for a day, for the cost of $50 - $100.

Recommendations/ Strategies

a) Evaluation of Distance Education – When selecting a medium or combination of media for achieving a particular teaching goal or learning outcome, selecting the correct media is based on the functions that the media needs to perform in the learning situation. In other words, selecting the correct media is crucial when providing learning. If development time and budgets are very limited, print and teleconferencing might be better choices than Web-based instruction. If student motivation is a major concern (and it often is), a more dynamic and interactive media should be selected.

b) Cost Analysis of Development and Delivery – SIAST has worked with Saskatchewan Agriculture to build a six to eight hour, Web-based course FoodSTEPS™ – Processing Foods Safely (Appendix C). This course was developed with greater than average number of interactions and allows for strong feedback and communications. Proposed courses by the food industry for Web-based development would be well served using the medium providing the target audience skill levels are well understood so training can meet audience needs.

c) Focus Group Study - To meet the need for flexibility, it appears that asynchronous online learning would meet the need for flexibility and training on demand. Other options would be to package training materials in CD-ROM or any type of format that could be used repeatedly be it different groups of managers or production workers.

Action Plans/ Next Steps

- From the outcome of the Phase II project, the partnerships associated with the SK Food Centre will continue to investigate targeted training programs for the Saskatchewan food manufacturing industry that will serve the needs for a sustainability and growing industry

- Explore avenues for potential funding and accessing available resources of and through the partners for on-going sustainability of the industry

- The sector partnership will work to develop and foster partnerships with Aboriginal organizations, including training providers, to promote career opportunities in the industry

- Industry and the SK Food Centre partnership will continue to work together to address training and human resource issues

- Continue to provide the Saskatchewan food manufacturing industry with up-to-date educational presentations, seminars, and workshops. Various communication routes that are at the partnership's disposal are: SFPA newsletters, Food Centre's newsletter – Food Focus, special mail-outs, special fax-outs, SFPA's website, Food Centre's website, U of S's website, SAFRR's website, SAFRR's communication of educational events in conjunction with its Communications Branch

- The SFPA in co-operation with Saskatchewan Learning prepare a news release to announce the completion of the study and the next steps

- The SFPA to produce and distribute the results of the study using a variety of means to ensure coverage and communication to the industry

Appendix A

Feasibility – delivering Training through the Internet

SIAST
SASKATCHEWAN INSTITUTE OF
APPLIED SCIENCE AND TECHNOLOGY

Saskatchewan Food Processing Industry Sector Partnership

Feasibility – delivering training through the Internet

Prepared by: Barb Bremner, dean, community services SIAST

June 2003

Saskatchewan Food Processing Industry Sector Partnership
Feasibility – delivering training through the Internet
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I. A look at distance education

Within a context of rapid technological change and shifting market conditions, educational institutions are challenged with providing increased opportunities without increased budgets. Many educational institutions are answering this challenge by developing distance education programs. At its most basic level, distance education takes place when a teacher and student(s) are separated by physical distance, and technology (i.e., voice, video, data, and print), often in concert with face-to-face communication, is used to bridge the instructional gap.

Advances in information technologies and telecommunications systems are profoundly affecting education and training in the province of Saskatchewan. The growing availability of the Internet, satellite and wireless networks, CDROMs, video conferencing, and multimedia software provide new possibilities to enhance access and quality of education and training.

Tony Bates (1995) suggests lifelong learning is essential due to the many different jobs being created, the increase in skills requirements of all jobs, an increasing number of unemployed needing new skills and rapid changes in workplace technology.

Bates contends that adult learning requires rapid and radical changes in methods of teaching and delivery - changes that will greatly affect the organization of post-secondary institutions. Educators need to think much more about how best to prepare students in this changing environment and consider what support services will be most helpful.

It is critical to select the delivery method(s) that creates a learning environment appropriate to satisfy the intended learning outcomes. Finding ways to actively involve students in the learning process is key.

Characteristics of the distance student

Most educators agree the approach used to deliver a distance course is different from the approach used to deliver a traditional course. Distance students have special needs, which must be accommodated before they can have a productive and enjoyable learning experience.

Distance students come from all age groups. Some are full-time, on-campus students taking a blend of online and face-to-face classes; others are working full-time in the immediate vicinity and are taking courses on a part-time basis; still others are located throughout Saskatchewan, the rest of Canada or the world and are taking courses full or part-time. Many of the students hold full-time jobs and have not taken any formal education for a number of years, which may lead to some anxiety when they first start a course.

Most distance learners do not attend regularly scheduled classes and may never meet their instructor or fellow learners face-to-face. Due to geographical separation, these students need the motivation to learn on their own without that face-to-face contact. A course must be well designed, and use effective delivery approaches for students to quickly feel part of an educational community.

Why do adults enroll in distance courses?

Most adult students have very clear reasons for enrolling in a distance course. Generally, they are highly motivated, committed and task oriented. They enroll in classes to update their knowledge in their respective fields of work, obtain credited courses, or simply take courses to improve their general knowledge. In our experience we have found that typically, adults

- Enjoy learning
- Expect efficiency
- Appreciate the convenience of learning at a distance and fitting learning into busy work and family schedules
- Feel some anxiety, particularly with tests
- Enjoy course activities, especially if relevant to their world
- Enjoy variety, specifically a mixture of media and guest speakers

Factors affecting student success

Many factors affect student success including educational background, personality characteristics, social activities, course-related problems, technical competence, job stability, workload, family responsibilities, and health. Most often, attrition cannot be attributed to any one cause, but rather to a number of causes.

Students are more likely to discontinue a course if

- The content is irrelevant to their careers or personal interests
- The course takes too much time or effort and is difficult to complete
- There is little or no help handling administrative or technical difficulties
- They have little or no feedback on their progress
- They have little or no interaction with the instructor and other students

Note: Our experience suggests that students who submit assignments, particularly the first assignment, and/or students who have already taken a distance course are more likely to be successful. Encouragement from faculty, fellow learners, family, friends, employers, and coworkers all motivate the distance learner to do well. The design and delivery of the course is of paramount importance. Courses should be designed with built-in supports and instructors should quickly identify at-risk students and provide them with additional support or counselling as required.

Media effectiveness and selection

There are many technological and media options available for delivering distance courses. When selecting the best medium or mixture of media for a particular course, we must first consider that each medium has its own strengths and weaknesses and match them to the nature of the learning environment.

Medium	Strengths	Weaknesses
Print	• Fairly inexpensive to develop and/or distribute • Presents large volumes of information efficiently and students can read material whenever, wherever and as often as they like • Spontaneous • Non-threatening • Easy to use • Cost effective	• A passive medium • Can be difficult to motivate students and maintain a high level of involvement • Very limited feedback and interaction • Dependent on reading skills-can be frustrating for less educated students, or those with average or below average reading skills • Is incapable of rendering three-dimensional objects – limited view of reality • Producing colour charts and graphics is very costly • May result in isolation for students if used solely • Difficult to update
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Medium	Strengths	Weaknesses
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Teleconferencing	• Can be effective for tele-mentoring • Reliable method of communication	• Can be expensive for students • No visual capability

When selecting a medium (or combination of media) for achieving a particular teaching goal or learning outcome, we make our selection(s) based on the functions the media needs to perform in the learning situation.

We consider whether we are trying to

- Motivate students and maintain motivation
- Provide new learning
- Provide quick feedback
- Encourage practice

If development time and budgets are very limited, print and teleconferencing might be better choices than Web-based instruction. If student motivation is a major concern (and it often is), a more dynamic and interactive media should be selected.

The main steps in most media selection models are

1. Identify the media attributes required by the learning outcomes and learning activities in your course.

    - This should be the starting place for selecting the media to be used. If, for example, you are teaching an English as a Second Language course, then a medium with sound capacity is necessary.

2. Identify the characteristics of your students that suggest or preclude certain media.

    - If your students are poor readers, then a more audiovisual medium should be selected. If your students are excellent readers, then print or a combination of print and computer-based may be the best choice.

3. Identify the characteristics of your students' learning environments that favor or preclude certain media.

    - Consider whether your students are learning at home, at work or with other students at a learning centre (i.e. a Regional College or a SIAST Technology Student Support Centre).

4. Identify economic and organizational factors that affect the feasibility of certain media.

- Consider the available time and budget, skill levels and past/existing use of a particular media.

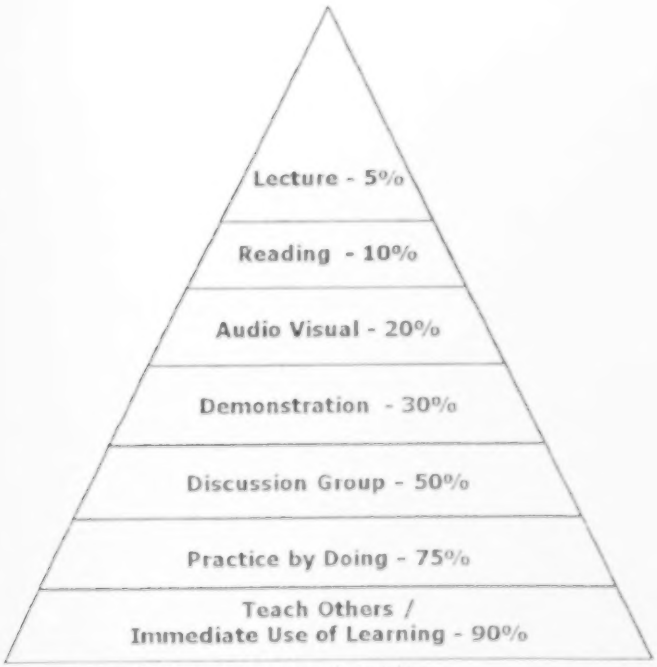
When applied in conjunction with an understanding of the strengths and weaknesses of different technologies and medium, these main steps provide rough guidelines for making decisions about media selection. However, in the final analysis, the effectiveness of any medium depends on

- The quality of the course design
- Its relevance to the learning outcomes
- The quality of the interaction the instructor/tutor is capable of developing with students

Students as active learners

Retention rate studies show that interactive learning is desirable and highly effective. The more actively involved students are in the learning process, the better their rates of retention.

Retention rate of different teaching methods



National Training Laboratories, Bethel, Maine

In an online format, there are several techniques for moving students from being passive (reading or lecture) to being active. An online course can be designed for a high level of communications interactivity and/or the materials themselves can be active/interactive.

Online learning

Utilizing an online learning environment does have upfront development costs that need to be considered, but the medium has strong abilities to

- Reach a spread population
- Provide interaction
- Provide feedback
- Allow for communication among peers and instructor
- Build educational communities among learners
- Provide anytime, anywhere access to rich delivery of content

Three general online learning formats are

1. Asynchronous virtual classrooms
2. Synchronous virtual classrooms
3. Blended approach (blend of synchronous and asynchronous virtual classrooms)

Synchronous and asynchronous defined

Asynchronous	Synchronous
Students participate in the learning activities whenever they want. Students are guided by a structured plan that directs them through learning activities without real-time interaction from the instructor or other students. Instruction and related student activities are often completely online. In other cases, CDROM's, textbooks, and course packs are used in addition to "click to learn" Web-based materials. The instructor interacts with students through email, threaded discussions, chat* and telephone. WebCT is the asynchronous tool used at SIAST for the development and delivery of online courses. * chat is a synchronous feature in WebCT	Instructors and students participate in the online activity at the same time. Also referred to as real-time or live events, activities include application (screen) sharing, chat sessions, whiteboard sessions, large or small group discussions, demonstrations, lectures, questions and answers. Communications may be video, audio or textbook. LearnLinc is the synchronous tool used at SIAST.

Asynchronous virtual classrooms

The asynchronous classroom brings a variety of Web technologies to a course or program including hypertext documents, online review exercises/quizzes, tests, multimedia (textbook, graphics, video, animation, screen capture demonstrations and sound), threaded discussion groups, email and chat rooms. Instructional design, creativity and the use of a variety of development tools largely determine the sophistication of the courses or programs.

Asynchronous virtual classrooms rely on a variety of communication tools that facilitate peer-to-peer learning, group learning, and student-instructor coaching. Asynchronous classrooms are a good choice if a learning outcome must be achieved in a group environment. Students can work together to brainstorm, analyze case studies and solve problems even though they are not online at the same time. Students can log in anytime and anywhere to contribute ideas.

If the instructor and course designer can define the outcomes and identify most of the resources students need, then the course is best suited for the asynchronous virtual classroom. In course delivery, the primary role of the instructor is to guide, facilitate and enhance learning experiences, encourage and facilitate chat and discussion, and to solve problems as they arise.

A guiding principle of course design is to encourage instructor/student and, where appropriate, student/student collaboration. Online asynchronous environments help to build educational communities.

Synchronous virtual classrooms

The instructor and students must be online at the same time. Students participate in live, instructor-led classes. Classroom tools include virtual whiteboards, shared applications and chat rooms.

Students are able to write or draw on online whiteboards to illustrate points. The whiteboard can be equated to an online blackboard. Instructors are able to explain difficult concepts such as mathematical formulas using a graphics tablet in conjunction with the whiteboard. Instructors and students can share in the use of applications such as Microsoft Excel, allowing the instructor to first demonstrate and then have students work as a group to fill in cells and enter formulas. With LearnLinc, students can interact in real time with their instructor and fellow students using voice communications. Textbook chat allows them to communicate by typing comments that participants can see. Textbook chat can be communicated to the entire group or privately to the instructor.

Synchronous classes can be recorded and stored on the server. In this way, students can access all of the content covered if they miss a class or need to review material.

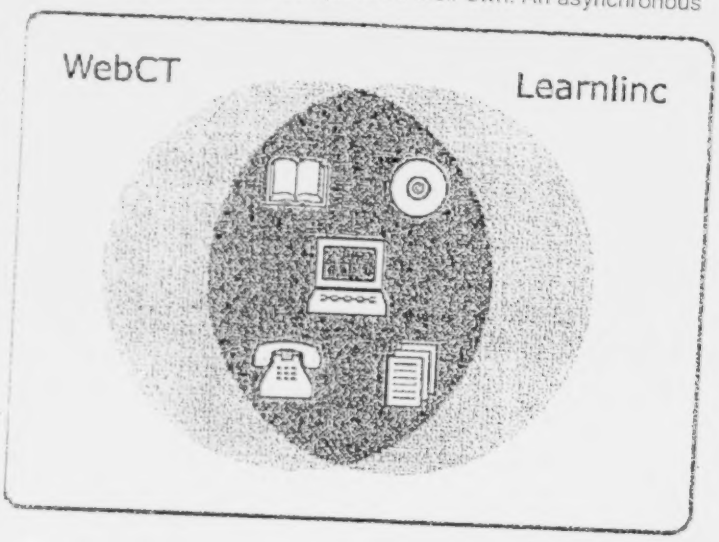
Courses best suited for the synchronous virtual classroom format would be those where the student must build new knowledge through active participation and dialogue with the instructor and other students. The synchronous virtual classroom is valuable in situations where students learn best with direction. LearnLinc sessions are also valuable in providing students with tutoring/mentoring.

LearnLinc enables a full collaborative/community environment in real time. The best use of this technology is for the instructor to provide an interactive and engaging forum. Course content is enhanced through demonstrations and live question and answer sessions much like seminars.

Blended approach (blend of asynchronous and synchronous classrooms)

Courses often use a blend of synchronous and asynchronous activities. As such, the terms "synchronous" and "asynchronous" should not be thought of as being mutually exclusive.

For example, SIAST courses considered to be synchronous (such as courses in Electrical Apprenticeship Level 1) include activities that students complete on their own. An asynchronous course (such as Pre-Apprenticeship Math) was designed so students could work on their own; however, a weekly instructor-led tutoring session via LearnLinc was deemed necessary to explain difficult mathematical concepts. More thought is being given to a blend of synchronous and asynchronous activities.



Considerations

When developing our courses, we consider the advantages of each format.

Use asynchronous activities when...	Use synchronous activities when ...
Real-time interactions are not necessary. Students are from a wide geographical area – possibly from different time zones or countries.	Real-time interaction is needed for students to communicate/brainstorm with other students at length. Students need immediate feedback.
Students are goal-oriented and self-motivated.	Students require the motivation of scheduled classes. Student motivation must be reinforced with peer/instructor influence.
Students are heterogeneous and have unique needs.	Students are homogeneous and have the same needs.
Students with work and family commitments do not have flexible or predictable schedules.	Students are able to meet for regularly scheduled classes.
Students need immediate upgrading and a course offering is not available in their community.	Students are able to wait for the next course offering.

SWOT analysis of online learning applied to environmental factors

The strengths, weaknesses, opportunities and threats associated to online learning can be reviewed based on a number of environmental factors.

Environmental Factors	SWOT Categories			
	Strengths	Weaknesses	Opportunities	Threats
Economic	Well suited to provide technical training for adults by reducing barriers of time, place and pace of study Develop long term programs for credential Efficient course development time (6–12 months)	Higher cost of course development & support than passive media Target audience learning styles not always met through technology	Business/industry and population demands for flexible technical training Shortage of skilled workforce Increased educational levels expected to increase productivity/ prosperity Growing global social demand for higher education Growth in target sectors	Other programs may be available outside of the province
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Environmental Factors	SWOT Categories			
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Political	Embraces change and demonstrates resilience Clear roles and responsibilities Motivated agencies and institutions	Subject to government support Required understanding of vocabulary and medium for development and delivery Reliance on other subsystems to provide services (i.e., delivery, distribution, registration, marketing)	Current provincial and national governments supportive of distance education View online education as a means to fast tracking training especially for skill shortages High training need based on real threats such as BSE Support network provided by provincial system	Global environment user pay trend Declining government financial support Need for availability of sufficient bandwidth province wide
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II. Cost analysis

Costs and development rate

Although the costs of offering distance education courses may be high, there are high costs associated with offering conventional courses. Benefits of distance education courses to the learner include (Ludlow, 1994)

- Accessible training to students in rural areas
- Students may complete their course of study without suffering the loss of salary due to relocation
- Students are exposed to the expertise of the most qualified faculty

The cost and time required to develop online courses will vary. Development time rate equals the number of person-hours of development (content expert, course designer, graphics designer and others) required to develop each finished hour of instruction.

Factors affecting development rate include

- Complexity
  Is the course simply a sequence of static pages that require arranging textbook and graphics in an HTML Editor such as DreamWeaver?

- Interactive exercises
  Does the course incorporate interactive exercises using tools that create self-check exercises such as Quandary or Hot Potatoes?

- Existing materials
  Is the course being created from existing classroom overheads and instructor notes with an accompanying textbook?

- Templates
  Are templates for development being used?

- Simulations
  Is a complex simulation being created?

- Graphics and multimedia
  Does the course incorporate graphics, video, audio and animation?

- Custom programming
  Complexity has a multiplicative effect. The more complex the course, the more development hours are required.

- Current materials
  Do the learning materials have to be written from scratch? According to Mike Huffman, manager of educational products development at Novell, it takes only half as long to create each hour of instruction if the material already exists in written form. At SIAST, we assume there will be less development time required for those courses with course manuals already in existence.

- Experience
  How experienced is the design team with the content and the technologies?

- Reusable components
  Are there any reusable components (i.e. templates, code snippets, graphics, Web site links and textbook)?

- Length
  As a course is built, a template and pattern develop. An 80-hour course does not necessarily take twice as long to build as a 40-hour course.

- Instructor release time
  To build a course with moderate interactivity and a reasonable level of technology, the typical release time for a subject matter expert is approximately one day per one hour of finished course instruction. There are a number of factors that may increase or decrease this time. Once release time has been decided, a detailed and time-restricted plan is critical to ensure the project can be developed using existing resources.

SIAST has worked with Saskatchewan Agriculture, Food and Rural Revitalization to build the six to eight hour course FOODSTEPS™. This course was developed with greater than average number of interactions and allows for strong feedback and communications. The development costs for this course was $18,000. This cost included system costs such as software licenses, hardware usage, office and other indirect costs to SIAST. In a partnership, SIAST would review indirect costs and absorb as able within our existing system.

Upfront planning and blueprinting is a critical piece to successful development. This then acts as a guide to show deliverables and expected level of interaction and development. Anything outside that blueprint would involve additional costs. The FOODSTEPS™ course has been able to develop well based on a solid foundation and good blueprint.

While course costs vary considerably, the following additional courses that have been produced by SIAST in other areas may provide an additional sense of development costs.

- 15-hour course - $27,000
- 30-hour course - $42,000
- 60-hour course – $54,000

You can see that there is no fixed pattern due to the number of factors that play a significant role. SIAST has determined that doubling the length of a course does not mean double the cost.

Developing infrastructure and a framework for each course is the same regardless of length, which can result in reduced costs for larger courses. SIAST also has a number of pieces such as a course template for all courses that helps to decrease development time per course.

Costs and delivery

At SIAST, delivery costs are calculated based on direct costs to the student and minimal indirect costs to the institution. The direct costs include salary that would need to be paid to an instructor and any other costs that would relate to the course. These costs vary based on the needs but include such items as fax, mailed print information, exam invigilation, required instructor or student resources, etc. Indirect costs associated to every online course at SIAST include technical support and registration. These costs are minimal and do not significantly impact the students on a per course basis. Sample delivery costs for previously developed and delivered courses follow:

- 15-hour course - $150
- 30-hour course - $250
- 60-hour course - $400

It is anticipated that the FOODSTEPS™ course can be delivered online at a comparable cost to the current face-to-face delivery cost.

III. Options for online training in the food processing industry

For further consideration of online delivery, the food processing industry needs to review

- Characteristics of their learners
- Motivational levels
- Geographical locations
- Need for interaction, feedback and communication
- Student access to computers
- Student access to the Internet
- Funding mechanisms

SIAST has successfully delivered both asynchronous and synchronous courses throughout most of the province. Synchronous technology is more problematic in northern areas where access to needed bandwidth is restricted. In our experience access to high speed Internet is preferred for synchronous technology due to real-time audio components. Asynchronous courses at SIAST are built to minimum requirements that can be expected anywhere in the province. For example, SIAST has successfully delivered asynchronous courses using WebCT in communities such as Buffalo Narrows and LaRonge as well as into the North West Territories. These courses are highly interactive and involve rich media.

In some instances, when activities may require a higher speed connection to maintain reasonable download times, SIAST may supplement the course with a CDROM to ensure good access. If this is not suitable for the target audience, alternate activities are determined. Currently, SIAST has public computer and Internet access in two of its centres with the remaining two to follow in the next 12-18 months. Regional Colleges also provide this public service in eight rural locations across Saskatchewan in efforts to help bridge the digital divide. Students without needed hardware and Internet access can take advantage of this provincial system.

A good starting point for the food processing industry would be to look at the global picture of the audience to be reached, the overall end product to be developed and available funds for development of courses. The online environment can provide superior distance delivery to many people providing they have needed access to computer equipment and minimum computer skills.

An initial step beyond the background profile of the learner would be to look at an overall view to an end credentialed program. SIAST can provide expertise and assistance to do a modified DACUM to review the occupations and tasks associated that would meet the industry need. By getting a picture of an overall program, we can then determine what currently exists, what SIAST can contribute and what needs to be developed. It is our view that online delivery would be a very viable option to be considered in this field.

Proposed courses by the food industry for Web-based development would be well served using the medium providing the target audience skill levels are well understood so training can meet audience needs.

IV. References

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Appendix A Definitions

Asynchronous delivery

You can sign on to the Internet anytime, anywhere and receive training. An instructor will be available from a distance. Communication occurs through email, chat groups and discussion rooms, or you can meet other students using conferencing and collaboration tools. The asynchronous tool we use at SIAST is WebCT.

Independent study courses/home study courses (print, video)

Independent study courses use print packages, audiocassette tapes, videotapes and other methods to provide course material and to direct students through readings and assignments. Course materials are generally sent to students through the regular mail. Students can contact their instructor by telephone or e-mail. In some courses, students may be required to attend a few classroom sessions, on-site labs, practicums or clinical experiences. Students in an independent study program usually have no formal contact with other students registered in the course. Independent study courses are sometimes called "home study" courses.

Online

You will progress through content via the World Wide Web. Depending on the program or course, you may have the opportunity to purchase CDROMs and/or videos that contain lectures and enhanced graphics.

Online programs and courses may have psychomotor skills labs and/or clinical experiences. These labs and experiences provide you with the opportunity to apply your newly acquired knowledge and skills.

Online learning includes synchronous and asynchronous distance learning. It also includes technology-enhanced learning that can enrich the learning experience for students in a traditional classroom setting.

Streaming

Playing audio or video immediately as it is downloaded from the Internet, rather than storing it in a file on the receiving computer first. Streaming is accomplished by way of Web browser plug-ins, which decompress and play the file in real time; a fast computer and fast connection are necessary.

Synchronous delivery

You will sign onto a computer at a specific time to meet with your instructor and other students. You will be able to hear your instructor and see text, graphics and/or video streaming on your computer screen. Synchronous delivery simulates the real life classroom. The synchronous tool we use at SIAST is LearnLinc.

Technology enhanced learning

A Technology Enhanced Learning (TEL) environment is learner centered and uses a variety of tools and technologies to enable increased interaction. Through the use of technology, we can create virtual learning communities with increased interaction for learners. Email, chat rooms and discussion groups are examples of environments that can enrich and enhance learning whether the students are enrolled at a distance or in a traditional classroom.

Teleconferencing

Teleconferencing involves interactive communication among several people at different locations ("tele" means long distance). It may involve audio conferencing, videoconferencing, or data conferencing.

Videoconferencing

Videoconferencing provides communication across long distances with video and audio contact that may also include graphics and data exchange.

Appendix B

Report of Focus Group

SIAST
SASKATCHEWAN INSTITUTE OF
APPLIED SCIENCE AND TECHNOLOGY

Saskatchewan Food Processors Association/Saskatchewan Agriculture

Report of Focus Group
November 3, 2003

Background

In response to a request from the Saskatchewan Food Processors Association (SFPA) and Saskatchewan Agriculture, representatives of SIAST Program Planning and Development Department conducted a focus group with representatives of the SFPA. Participants were selected to ensure representation from a range of sizes of businesses.

Seven members of the SPFA participated in the two-hour discussion which was held November 3, 2003 in the Boardroom. The demographics of the participants were as follows:

Number of participants = 7					
Employers = 4			Employees = 3		
Size of business	6 or less (1)	7-12 (0)	13-19 (1)	20-49 (2)	50 or more (3)
Long-term company goals* *note-participants chose more than one.*	Provincial markets (4)	Western Canada Markets (1)		National Markets (4)	International Markets (2)

The purposes of the focus group were to determine:

- the most suitable method of delivering training
- reasonable training costs
- the ten priority areas for course development
- strategies for training success

General Themes

A major theme that came out of the meeting was the need for flexibility as to when courses are offered. A number of participants stressed a preference for having training available on demand in order to fill slow times in production, when new employees are hired, etc. Training programs available on demand are an important factor in ensuring success.

General Observations

To meet the need for flexibility, it appears that asynchronous online learning would meet the need for flexibility and training on demand. Other options would be to package training materials in CDROM or any type of format that could be used repeatedly be it different groups of managers or production workers.

Ideas of suitable costs of training varied considerably. Acceptable training costs for management programs depend more on the quality of training received and are more variable. Most companies reported that it is more difficult to free up production workers to attend training programs, possibly only for a day, for the cost of $50 - $100.

Priority training areas:

Refer to pages 9 and 10 of this report for a complete ranking of topics

Managers (listed in order of priority rating as is possible. Consider also the very small sample size of respondents.)

1. Business Planning
2. Leadership
3. Marketing
4. Competitive Intelligence
5. Markets
6. Decision making/problem solving
7. Oral communication
8. Senior Management Training (Human Resource Development)
9. Middle Management Training (Human Resource Development)
10. Food Regulations

Production Workers (listed in order of priority rating as is possible. Consider also the very small sample size of respondents.)

1. Workplace safety
2. Food quality
3. HACCP
4. GMPs
5. Food safety
6. Food handlers training
7. First Aid
8. ISO
9. Food processing regulations
10. Maintenance personnel training

The remaining information from the focus groups is presented in two sections:

#1 –Details of the discussion according to each question

#2 – Questionnaire results

Part 1

Food Processing Focus Group Meeting Notes

Introductory question: Challenges faced in your workplace right now.

A large employer stated that his major problem is high staff turnover - wants, as much as possible, to have employees know what they are getting into before starting work.

Another problem identified by the employer was the difficulty in providing training to the large number of employees (two to three hundred).

A participant identified training in quality control as an important need facing his company.

A participant from a small company expressed a need for training in front office skills, i.e. public relations and money handling. He also identified a need for training in general food handling.

One participant stated that their company was forecasting future growth and that is leading to problems. Now, most employees are permanent, part time. The participant felt that upper level workers (management) received adequate training, but lower level workers did not. The participant wanted all employees to receive training, but because of their relative small number of employees (10) they were all needed on the floor and they couldn't shut down the plant to provide training.

A participant from a small company stated that training and retention are important issues for them. The participant stated that because their company was small they did not have a separate HR department. There are sometimes HR issues and the participant felt their company could use general HR training.

A larger employer stated that training for employee retention was not that important to them. The participant identified sales training as an important concern for her company.

A medium sized company identified quality control, especially HACCP training as important. Recruitment and retention was also mentioned as an issue.

Question 1: Ideas/opinions on how training should be delivered in the workplace.

General comments on this question

One participant stated he would like training provided in 2-hour modules

- i.e. every Thursday afternoon
- or four hours a week for HACCP

One of the participants talked about Donald Cooper HR videos - they were very good, but expensive. A question was asked if SIAST could put together videos on HR.

One of the participants stated he would like to have a trainer come into the workplace for a couple of hours because they couldn't afford to shut down production for more than that amount of time. This was agreed to by some of the other participants.

A small employer stated he would like to see a number of people trained, by an independent agency, in basic food science and thus provide a pool of trained workers to draw from.

There was a general discussion on Internet training. One of the participants stated that the effectiveness of Internet training would depend on computer sophistication and general motivation of the employee. He stated he would rather have someone come in and provide training. Another participant agreed with this.

Question 2: What would be the most appropriate time for training to occur?

One of the participants reported that their company trains during the same month every year (Nov.)

One participant stated they have noon hour sessions (four per month) for quality control training.

One of the participants stated that they will shut down production in one of their departments for food handling and HACCP training once a year. This also happens for safety training once a month. (It was not clear how long these sessions are.)

An idea was presented that workers from the floor could be released, throughout a given day, in 1/2-hour chunks and during that time their work would be covered by others.

Question 3: Who should provide the training?

One of the large employers pointed out that SIAST is currently providing some training.

A medium sized employer stated that all of their training is currently offered in-house.

A smaller employer would like to have someone come in and would like to have an institution they could contact to organize this.

There was a general discussion that concluded that there was a difference in training for managers and production workers.

- All agreed that production workers' training should be provided at the work place. It was stressed that quality control would be an example of an important training need.
- One participant thought there could be outside training for basic needs like food safety.

An idea came out that a Power Point presentation to use with a Food Steps course could be developed.

Another idea was to have a Food Steps course online. Participants thought this would be a good idea. It was also mentioned that a Food Steps course could be put online through SIAST and students could register through SIAST.

A large employer stated that train-the-trainer training could be provided in order to facilitate in-house training.

Question 4: Who should participate?

Manager training

A large employer sends managers out for training.

One participant discussed the need for time management and general sales training. She thought online training would be excellent in this area if students could access the training at times when they wanted and were able to work at their own speed. She talked about a one-day course they provided for their sales staff. She felt it wasn't that useful because many of their sales staff are at different levels and have different perspectives.

One participant felt it would be useful to get people from different companies together for management training (industry wide training).

A small employer felt managerial training could be provided online and not at a particular time.

One participant stated that there was more freedom with providing managerial training in that productionline workers are 8-5, where managers are often more interested in doing training on their own time.

Question 5: Costs - who should pay? What would be a reasonable cost for training?

A large employer felt he would not like to pay more than $199.00 per day (per person). This would be for training above and beyond basic needs training.

A small employer felt cost wasn't crucial if the training was good and worthwhile.

A participant stated that need was the biggest factor; they would then look at cost.

For basic training for production, i.e. food steps $50.00 per day would be a reasonable cost. (It was discussed that such courses are subsidized by Sask. Agriculture.)

One participant stated that he realized there were costs attached to training, but there is also a cost attached to having untrained workers. He felt $100.00 per day/person would be a reasonable cost.

One participant stated it would be handy to have a CD that could be purchased for food-safety training.

Question 6: How important is certification?

In general people thought certification was important.
For safety training, some sort of certification should definitely be supplied.

One participant felt that certification was not as important for managers. There was general agreement with this.

A large employee stated that certification is not that important for HCCAP training, but in their plant they do keep a list of people who have taken the course.

One employer felt that certification for such things as first aid and CPR is very important.

The conversation concentrated on online training for a bit. One participant stated that anything online has to be as straightforward an entertaining as possible.

One participant felt that certification could be used as stepping stones for workers.

Question 7: What needs to happen to ensure success?

Cost is a factor.

Training should be available on demand (new employees, slow work times, etc.).

One participant stated that if training was available monthly throughout the province that most trainees could be reached.

It was felt that training must be as flexible as possible in regard to time offering (i.e. if there was, for some reason, a slow production day, training could take place).

All agreed that for production workers training has to be done on work time, but it has to be flexible.

One of the participants felt that sometimes companies should look at economic incentives associated with training. This depends on the company and employees.

One of the participants stressed the importance of flexibility and thought that perhaps online would work best because of the time flexibility it offers. It was stressed that language shouldn't be too complicated.

The group agreed that companies need to be committed to facilitate training and that evaluation of training is very important.

The discussion went to managers and it was generally agreed that time flexibility was not as important for managerial training because of their ability to get away from work.

Another participant reiterated the importance of time flexibility and felt online training may work. He also liked the possibility of one-on-one training that could be provided by online training.

(Note: this was a change for this participant's earlier comment that online training would **not** be suitable.)

Question 8: Barriers to training.

- Language and literacy
- Special needs of employees are important considerations

Question 9: Most important information we need to consider.

- Quality of training
- Cost
- Time and place of training
- Want training when it's needed
- Training has to be easily updated
- Regulations etc. often change

Part 2 – Results of Rating Surveys

Note: participants indicated that they preferred to rate "Management" training needs separate from "Production Worker" training needs, hence there are two sets of results which are featured on the next two pages (9 and 10). . ***Note that 1 = Greatest priority and 10 = least priority.***

Food Processor Training
Rating Survey
Nov. 3, 2000

Explanation of Importance Ratings for
"Production Workers"
Number of responses "5"
Employee = 3
Employer = 4
6 or less employees = 1
13 - 19 employees = 1
20 - 49 employees = 2
50 or more employees = 3

		Importance Ratings and Frequency of Responses										
		Greatest Priority									Lowest Priority	Average
	Status and number of employees											
	Rating	1	2	3	4	5	6	7	8	9	10	
	A. Essential Skills											
1	Decision making/problem solving	1	0	1	0	0	0	0	1	0	2	6.4
2	Writing	0	0	0	0	1	0	0	0	0	4	9.0
3	Numeracy	0	0	0	0	1	0	0	0	0	4	9.0
4	Oral Communication	0	0	1	0	0	1	0	0	1	2	7.6
5	Working with others in the workplace	1	0	0	0	1	0	0	1	0	2	6.8
6	Computer use (general)	0	0	1	0	0	0	0	0	0	4	8.6
	B. Food Processing											
1	Food safety	4	0	1	0	0	0	0	0	0	0	1.4
2	Food quality	4	1	0	0	0	0	0	0	0	0	1.2
3	HACCP	4	1	0	0	0	0	0	0	0	0	1.2
4	ISO	2	1	0	1	1	0	0	0	0	0	2.6
5	GMPs	4	1	0	0	0	0	0	0	0	0	1.2
6	Food regulations	1	0	1	1	2	0	0	0	0	0	3.6
7	Food processing operations	1	1	2	0	0	0	0	0	0	1	3.8
8	Equipment Technology	0	1	1	0	1	0	0	0	0	1	5.0
	8 a) Processing	0	1	1	0	2	0	0	0	0	1	5.0
	8 b) Environmental processing	0	1	1	0	1	0	0	0	0	1	5.0
9	Product development	0	0	0	1	1	0	0	0	1	2	7.6
	C. Business Development											
1	Business planning	0	0	0	0	0	0	0	0	0	5	10.0
2	Marketing	0	0	0	0	0	0	0	0	0	5	10.0
3	Markets	0	0	0	0	0	0	0	0	0	5	10.0
4	Competitive intelligence	0	0	0	0	0	0	0	0	0	5	10.0
5	Export skills	0	0	0	0	0	0	0	1	0	4	9.6
	D. Human Resource Development											
1	Senior management training	0	0	0	0	0	0	0	0	0	5	10.0
2	Middle management training	0	1	0	0	0	0	0	0	0	4	8.4
3	Front line supervisory training	1	1	0	1	0	0	0	0	0	2	5.4
4	Food handlers training	4	0	1	0	0	0	0	0	0	0	1.4
5	Maintenance personnel training	1	0	2	1	0	0	0	1	0	0	3.8
6	Leadership	0	0	0	0	1	0	0	1	1	1	8.0
	E. Research and Development											
1	Commercialization	0	0	0	0	0	0	0	0	0	5	10.0
	F. Operational Support											
1	Workplace safety	5	0	0	0	0	0	0	0	0	0	1.0
2	First Aid	3	1	1	0	0	0	0	0	0	0	1.6

There was one other "WHIMIS" under Operational Support that rated 1 = highest priority

Explanation of Importance Ratings for "Management"
Number of responses "7"
Employee = 3
Employer = 4
6 or less employees = 1
13 - 19 employees = 1
20 - 49 employees = 2
50 or more employees = 3

		Importance Ratings and Frequency of Responses										
		Greatest Priority									Lowest Priority	Average
	Status and number of employees											
	Rating	1	2	3	4	5	6	7	8	9	10	
	A. Essential Skills											
1	Decision making/problem solving	4	2	0	1	0	0	0	0	0	0	1.7
2	Writing	1	4	0	0	1	0	0	1	0	0	3.1
3	Numeracy	1	3	0	0	1	0	0	1	1	0	4.1
4	Oral Communication	5	1	0	0	0	1	0	0	0	0	1.9
5	Working with others in the workplace	5	0	0	0	0	0	0	2	0	0	3.0
6	Computer use (general)	2	3	0	1	0	0	1	0	0	0	2.7
	B. Food Processing											
1	Food safety	2	2	0	0	0	0	0	2	0	1	4.6
2	Food quality	2	2	0	0	0	0	0	1	1	1	4.7
3	HACCP	3	3	0	0	0	0	0	0	1	0	2.6
4	ISO	1	4	0	1	0	0	0	0	1	0	3.1
5	GMPs	1	3	1	1	0	0	0	0	1	0	3.3
6	Food regulations	3	2	0	0	0	1	0	0	0	0	2.2
7	Food processing operations	3	2	0	0	0	1	1	0	0	0	2.9
8	Equipment Technology	2	2	0	0	0	1	0	0	1	0	3.5
	8 a) Processing	2	3	0	1	0	0	0	0	1	0	3.0
	8 b) Environmental processing	2	3	0	1	1	0	0	0	0	0	2.4
9	Product development	2	3	0	1	0	0	0	0	1	0	3.0
	C. Business Development											
1	Business planning	7	0	0	0	0	0	0	0	0	0	1.0
2	Marketing	5	1	1	0	0	0	0	0	0	0	1.4
3	Markets	4	2	0	1	0	0	0	0	0	0	1.7
4	Competitive intelligence	3	4	0	0	0	0	0	0	0	0	1.6
5	Export skills	3	2	0	1	1	0	0	0	0	0	2.3
	D. Human Resource Development											
1	Senior management training	4	1	1	0	0	1	0	0	0	0	2.1
2	Middle management training	3	2	1	0	1	0	0	0	0	0	2.1
3	Front line supervisory training	4	0	1	0	1	0	0	0	1	0	3.0
4	Food handlers training	2	0	2	0	0	1	0	0	1	1	4.7
5	Maintenance personnel training	1	1	1	1	1	0	0	1	1	0	4.6
6	Leadership	5	2	0	0	0	0	0	0	0	0	1.3
	E. Research and Development											
1	Commercialization	0	5	0	1	0	0	0	0	0	0	2.3
	F. Operational Support											
1	Workplace safety	4	1	0	0	0	1	0	0	1	0	3.0
2	First Aid	3	2	0	0	0	1	0	0	1	0	3.1

There were 2 others entered: 1 under Essential Skills which was Educational Background which rated a "3"
1 for Personal hygiene - clothing which rated "3"
- appearance which rated "2"

Appendix C

Training Initiatives Developed

Training Seminar @ food centre

Implementing HACCP Into Food Processing Operations

Increasing interest and demand by consumers for safe, high quality foods are pressuring food processors to develop and implement food safety programs that identify, control, and eliminate food safety hazards for the foods that they produce. Aside from this consumer pressure, market requirements by large chain stores and other retailers plus Canadian and international regulations are having an identical influence on processors. A well-implemented HACCP system can effectively alleviate much of these pressures.

This course will assist participants in learning how to analyze, develop, implement and maintain effective Prerequisite Programs and HACCP plans into their operations.

All training components of the course are in compliance with the Canadian Food Inspection Agency's HACCP Curriculum Guidelines for training professionals. Each participant successfully finishing the course will receive a certificate of completion.

January 25-27, 2005

8:30 am to 4:30 pm

Food Centre - Classroom #1
#117 - 105 North Road, Saskatoon, SK

$200.00 (plus GST) per person
(registration fee includes refreshment breaks, lunch and course materials)

To register, contact Valerie Menzies at 933-7555 or
for more information, contact Chris Smith at 933-7174

Parking: Food Centre metered parking or Lot #4 across the street from the Food Centre

Canada

Financial support for this program has been provided by the Canadian Adaptation and Rural Development Fund in Saskatchewan (CARDS). Funding for the CARDS program is provided by Agriculture and Agri-Food Canada

Saskatchewan Food Industry Development Centre Inc. 117 - 105 North Road, Saskatoon, SK S7N 4L5
ph (306) 933-7555 fax (306) 933-7208 www.foodcentre.sk.ca

Menu Planning (PLAN 180)

Food & Nutrition Management Diploma course

You will study the basic principles of menu planning in conjunction with menu formats and terminology. You will also plan various types of menus.

DISTANCE EDUCATION register through SIAST Kelsey Campus *1-866-goSIAST*
Video correspondence: Mar 1-May 7
Course registration number 03-505

Tuition fee: $225 (manual included)
Additional costs: Approximately $90 payable with registration for "Fundamentals of Menu Planning"

Nutrition (NUTR 182)

Food Service Worker Program course
Food & Nutrition Management Diploma course
Hotel & Restaurant Administration course
Professional Cooking course

You will learn the basic principles of nutrition and nutritional requirements throughout the life cycle.

DISTANCE EDUCATION register through SIAST Kelsey Campus *1-866-goSIAST*
Video correspondence: Mar 7-Jun 22
Course registration number 03-506

Tuition fee: $265 (manual included)
Addition costs: Approximately $150 payable with registration for "Nutrition and Diet Therapy", "Nutrient Value of Some Common Foods", "Using the Food Guide"
Note: Textbook "Nutrition & Diet Therapy" is used for Special Diets.

Safety (SFTY 180)

Food Service Worker Program course

You will learn kitchen safety procedures that reduce the risk of injuries from occurring on the job. The course content includes the role of Occupational Health and Safety.

DISTANCE EDUCATION register through SIAST Kelsey Campus *1-866-goSIAST*
Video correspondence: Oct 25-Nov 19, time to complete 9hrs/4wks
Course registration number 02-494

Tuition fee: $120 (manual included)
Additional costs: Approximately $20 payable with registration for "For Your Back"

Sanitation Food Steps (SANT 184)

Retail Meat Cutting course

You will learn the procedures and regulations governing sanitation and hygiene as set out by the Provincial Meat Inspection criteria. The course focuses on safe handling of fresh and cured meat products.

DISTANCE EDUCATION register through SIAST Kelsey Campus *1-866-goSIAST*
Online: Sep 14-Oct 19, 2004
Course registration number 02-19

Online: Jan 11-Feb 15
Course registration number 03-5

Online: Apr 5-May 3
Course registration number 03-4

Tuition fee: $50

Special Diets (NUTR 189)

Food Service Worker Program course

Your studies will focus on the use of diet in the treatment of certain diseases. The course content includes the rationale and importance of special diets, and the appropriate use of diet guidelines in writing therapeutic menus.

DISTANCE EDUCATION register through SIAST Kelsey Campus *1-866-goSIAST*
SCN/home study: Apr 5-May 24
SCN classes: Tu Apr 5-May 10, 7–10 pm
Course registration number: 03-TBA

Tuition fee: $265 (manual included)
Additional costs: Approximately $170 payable with registration for "Nutrition and Diet Therapy", Good Health Eating Guide Resource"
Note: Textbook "Nutrition & Diet Therapy" is used for Nutrition.

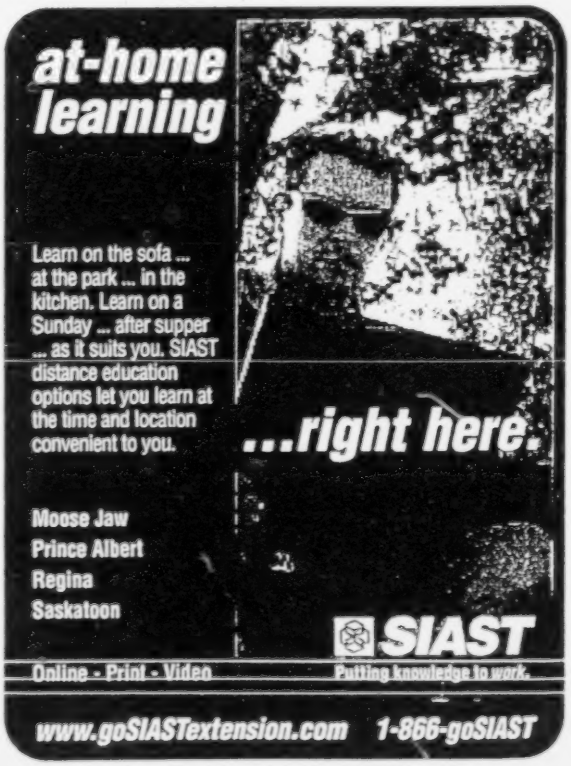
Current Non-Credit Course Offerings

Hospitality Supervisory Skills (SUPR 1811)

This course will provide you with the skills you need to work as a supervisor in the hospitality field. It will enable you to solve work related problems, deal with staffing issues and scheduling, motivate employees, and manage your time effectively.

ION CAMPUS Kelsey Room 145
Tu Oct 5-Dec 7, 7–10 pm, 30hrs/10wks
Course registration number 02-543

Tuition fee: $190 (manual included)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Learn on the sofa ... at the park ... in the kitchen. Learn on a Sunday ... after supper ... as it suits you. SIAST distance education options let you learn at the time and location convenient to you.
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